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STONE IMPLEMENTS OF SURGERY (?) FROM SAN MIGUEL ISLAND, CALIFORNIA

By H. NEWELL WARDLE

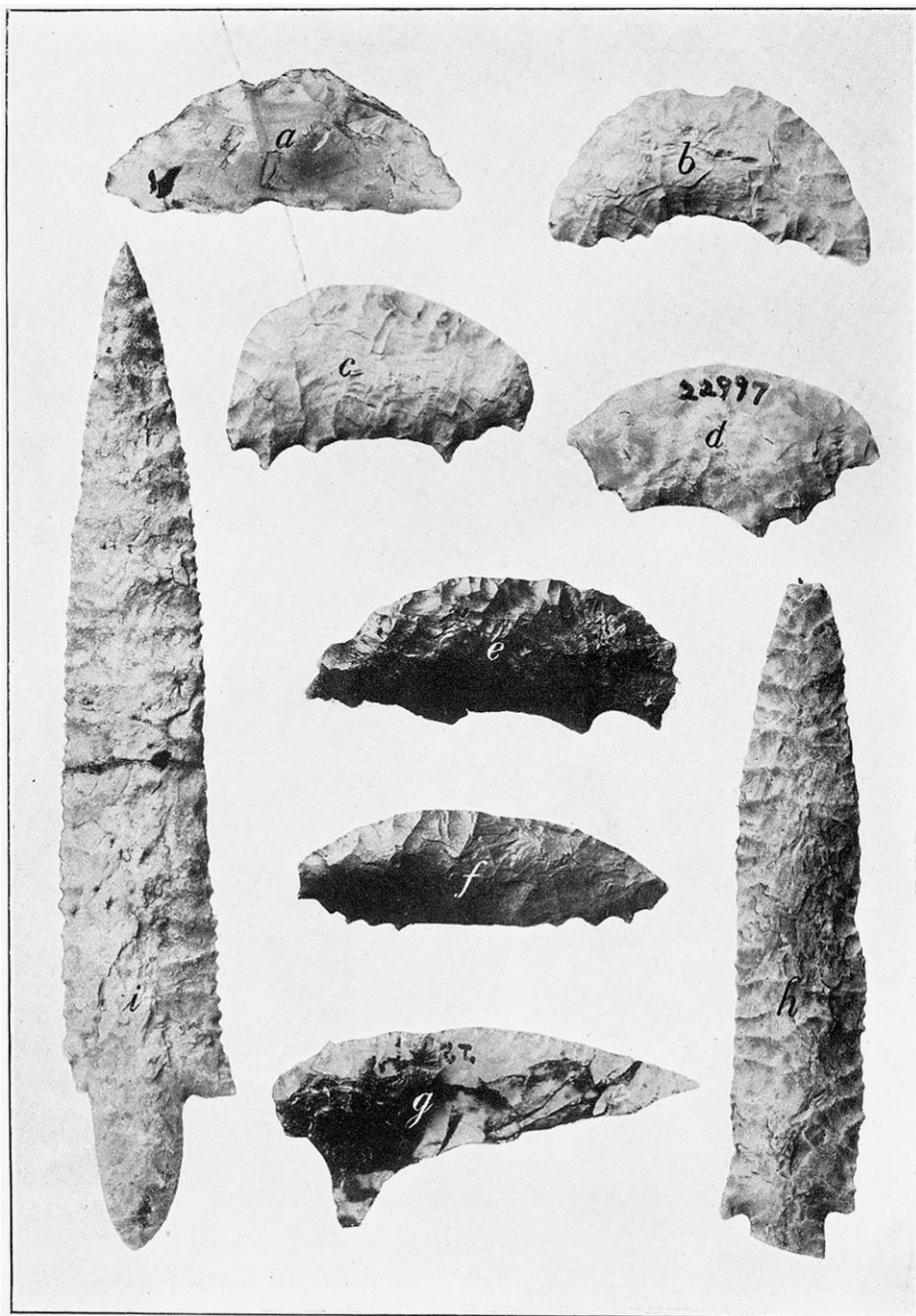
THE seven stone implements which are the subject of this paper were gathered many years since on San Miguel island, the most westerly of the Santa Barbara group, lying off the coast of southern California. The San Miguel archeologica now incorporated into the Vaux Collection of The Academy of Natural Sciences of Philadelphia, include also spear- and arrow-heads, drills, perforators, knives, plummets, pendants, rubbing-stones, pestles and mortars, stone cups, tubes and tubular pipes, ring-stones for war-clubs and digging-sticks, and beads of stone and of shell—a typical series of about ninety specimens in all.

Unfortunately it is now impossible to determine whether these seven pieces which, upon a recent overhauling of the collection, were found by the writer grouped together, along with two slender knife-blades,—to which reference is made later,—came from a single burial and were possibly once the property of some native “specialist,” or, scattered through several graves, represent the activities of various medicine-men. Be that as it may, they show amid their variation a strong family likeness, a peculiarity and specialization of outline, for which it would be difficult to suggest other than surgical uses.¹

In length they vary between 57 mm. and 41 mm., and, with a single exception, are all most carefully and delicately chipped from quartz or flint.

This exceptional piece (A. N. S. P. no. 22998), plate xxxviii, *a*, has the appearance of a more primitive type from which five of the others were evolved. It is of translucent quartz, with an almost straight lower edge and an upper which is roughly the quadrant of a circle.

¹ The term “surgical” is here used in its broadest sense to cover any operation of a cutting implement upon living tissue.



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Figs. *a-f*, scarifiers; *g*, lancet; *h-i*, knives. (Natural size.)

The entire circumference has been minutely flaked to a cutting edge, which, viewed edgewise, exhibits a distinct double torsion of the outline, resembling the tilde over the Spanish *ñ*, and more marked on the convex than on the straight edge. A slight notch, a little aside from the median line, may have facilitated a possible hafting. The piece has a length of 48 mm., a width of 19 mm. at its middle, and maximum thickness of 8 mm. The thickness, which exceeds that of any of the other pieces under consideration, is possibly due to the refractory nature of the material employed.

A second implement (A. N. S. P. no. 22996), figure *b*, has much more character. The even semicircular convexity of its beautifully finished upper edge shows a median notch, which corresponds to a broader concavity in the central third of its lower edge, which, while quite sharp, owing to the extreme thinness of the artifact, yet lacks the prominent teeth which mark its extension upon either side. The piece is of putty-colored flint and measures 44 mm. in length.

In a third specimen (A. N. S. P. no. 22995), figure *c*, chipped from the same material, there is less symmetry of contour, though the workmanship is quite as skilful. The upper edge lacks the median notch, though the lower edge retains the even line in its center. The teeth on the lateral portions of this edge are more spine-like and of varying length, the two series being set nonconformably. Length 41 mm.

This nonconformity of the teeth is emphasized in another implement (A. N. S. P. no. 22997), figure *d*, to such a degree that the two series of teeth would be perpendicular to each other were their continuity not broken by the even concavity of the lower median notch. This tilting up of the lateral portions of the lower edge noticeably shortens the upper, and gives to its unnotched outline the appearance of lessened convexity. Unlike the three previously described, this and the two following artifacts show a differentiation of the two faces, the one being much more convex than the other, though the "retouching" has been done from both faces. The specimen is of translucent quartz, and measures 42 mm., being the smallest of the group.

That the serrations of the lower edge served a definite purpose

is shown by their noticeable correspondence in the piece just described and in another artifact (A. N. S. P. no. 23000), figure *e*, which, though longer, not so broad, and with the angles less pronounced, yet repeats the number and relationship of the cusps and the concave, notchless line in the center. Two of the teeth have been broken away, but their position is plainly to be seen. There is, however, the difference that, taking into consideration the almost flat "back" of the implement, the design of the teeth is reversed. The piece, which is of black flint with a gray reflex, exhibits a unique feature. In lieu of the median notch in its convex upper edge, there are two clear-cut nicks, each nearly opposite the tooth which marks to right or left the shallow central notch of the lower edge. It has a length of 51 mm.

A more symmetrical form characterizes one of these instruments (A. N. S. P. no. 22999), figure *f*, which may be described as elongate amygdaloid with one point slightly blunted. The upper edge has an unnotched and even contour. In the place of the broad shallow notch or toothless concavity of the lower edge which appears upon the other specimens, there is here a straight line along the central third, beyond which begin, upon each side, the delicately cut serrations, minute and keen. The specimen is of gray flint with a length of 50 mm.

The last two pieces described show a slight beveling at one end, which may be wholly accidental or may have played its part along with the lower notch, and the upper when present, in the hafting of the blade. For hafted they probably were, though in what position it were hazardous to guess.

All these specimens¹ were apparently scarifiers, though the

¹ Through the courtesy of Mr Nels C. Nelson, subsequent to the presentation of this paper to the American Anthropological Association, the writer was enabled to examine the archeological collection from California in the American Museum of Natural History, and found therein a number of artifacts of similar character to those herein noted. They appear to be mostly of the crescent form with its variants as above described, some showing outlines which suggest crude animal shapes even more than does that of the Academy's specimen above described (fig. *c*)—a resemblance which is deemed to be of too fortuitous an origin to warrant mention in the text. Some of the specimens are larger than any here described, and carry broad, heavy teeth. The central concavity or toothless notch of the lower edge is, so far as noted, always

peculiarities of some would suggest that they had other and more special uses, better known to the stone-age surgeon than to the latter-day archeologist.

The remaining piece of the group (A. N. S. P. no. 22994), figure *g*, is a slender blade of quartz with an opalescent luster, resembling chalcedony. From a rounded base it tapers to an acute point, and would be quite symmetrical but for a secondary point, or spine, which projects at an angle of approximately 90 degrees from near the base of the artifact. The tip has been broken from this spine, but in its present state it measures about 1 cm., while the entire length of the implement is 57 mm. The piece might have served as a lancet.¹

In conclusion a passing reference may be made to the two long and slender flint blades (A. N. S. P. nos. 22992 and 22993) shown in figures *h* and *i*—91 mm. (incomplete) and 136 mm. in length respectively—which were associated with the artifacts just described. They are of cream-colored flint and of excellent workmanship, with finely serrated edges. The shorter, which has lost four or five millimeters at the tip, has a notch midway along one edge. It is stemmed and barbed. The longer blade, also stemmed, has but a single barb, the corresponding part of the opposite edge being

present; the upper median notch is variable, being occasionally replaced, as in figure *e*, by two nicks, laterally placed, and occasionally absent. The amygdaloid form is rare. The series runs into several markedly aberrant forms, which possibly do not belong to the same category. Most of the class under discussion are recorded as from San Miguel island, but three specimens from San Nicolas were noted, and it is thus quite possible that they may occur in other islands of the Santa Barbara group. Ceremonial scarifying was a common practice among the California tribes.

¹ Two curious stone instruments from New Zealand—the one a symmetrical point with a secondary spine arising at a somewhat greater angle from its base, and the other a curved blade with a jagged edge and blunt at one end, evidently for hafting—are published by Edge-Partington (*Ethnographic Album of the Pacific*—N. Z. pl. 218, figs. 2 and 5) with the remark that they were said to be used for surgical purposes. The curved blade (fig. 148, *a*) suggests the San Miguel scarifiers; the other (fig. 148, *b*) bears a strong family resemblance to the lancet form above described. Both the New Zealand and the San Miguel blades with the secondary spine would have served admirably for trephining, but the writer has seen no evidence that trephining was practised in either locality. The rarity of the type may be accounted for by the use of the more perishable bone implements for lancets, as was customary among the Tinné until a recent date (P. Julius Jetté, S.J., Riddles of the Ten'a Indians, *Anthropos*, VIII, p. 637, riddle 69).

finely finished close to the stem with minute and keen serrations. These are knives rather than projectile points, and may originally have belonged with the instruments in whose company they have lain for many years.

This paper aims to suggest rather than to prove the possible purpose of a class of stone objects hitherto undescribed, and it will

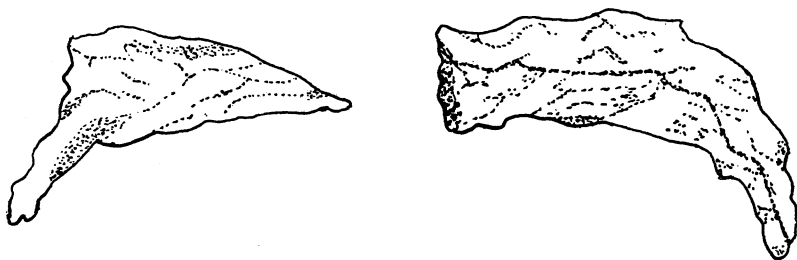


FIG. 148.—New Zealand surgical instruments.
(After Edge-Partington.)

have attained its object should it elicit information as to the distribution of similar artifacts, or as to instruments still used in the practice of primitive surgery.

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